

**FOR YOUR SAFETY***If you smell gas:*

1. Open windows.
2. **DO NOT** try to light any appliance.
3. **DO NOT** use electrical switches.
4. **DO NOT** use any telephone in your building.
5. Leave the building.
6. Immediately call your local gas supplier after leaving the building. Follow the gas supplier's instructions.
7. If you cannot reach your gas supplier, call the Fire Department.

**⚠ WARNING****Fire Hazard**

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

Some objects will catch fire or explode when placed close to heater.

Failure to follow these instructions can result in death, injury or property damage.

# Vantage® NP

**CTHN-40****CTHN-60****CTHN-80****CTHN-100****CTHN-125****CTHN-150****CTHN-175****CTHN-200**

## Fuel Conversion Kit Instructions

**⚠ WARNING**

Improper installation, adjustment, alteration, service or maintenance can result in death, injury or property damage. Read the Installation, Operation and Service Manual thoroughly before installing or servicing this equipment.

Installation must be done by a contractor qualified in the installation and service of gas-fired heating equipment or your gas supplier.

**Installer**

Please take the time to read and understand these instructions prior to any installation. Installer must give a copy of this manual to the owner.

**Owner**

Keep this manual in a safe place in order to provide your serviceman with necessary information.

**Quality in Any Language™**

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## SECTION 1: HEATER SAFETY



Your Safety is Important to Us!  
This symbol is used throughout the manual to notify you of possible fire, electrical or burn hazards. Please pay special attention when reading and following the warnings in these sections.

Installation, service and annual inspection of heater must be done by a contractor qualified in the installation and service of gas-fired heating equipment.

Read this manual carefully before installation, operation or service of this equipment.

Due to the nature of gas conversions, it is important you use the correct conversion kit for the heater model and gas you are converting to. Use only genuine ROBERTS GORDON® conversion kits.

This heater is designed for heating nonresidential indoor spaces. Do not install in residential spaces. These instructions, the layout drawing, local codes and ordinances, and applicable standards that apply to gas piping, electrical wiring, venting, etc., must be thoroughly understood before proceeding with the installation.

Thin sheet metal parts, such as the reflector portion of the heater and the various venting components, have sharp edges. To prevent injury, the use of work gloves is recommended. The use of gloves will also prevent the transfer of body oils from the hands to the surface of the reflector.

Before installation, check that local distribution conditions, nature of gas and pressure, and adjustment of the appliance are compatible.

For additional copies of the VANTAGE® NP Installation, Operation and Service Manual, please contact Roberts-Gordon.

### WARNING

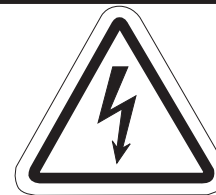


#### Explosion Hazard

**Turn off gas supply to heater before service or maintenance.**

**Failure to follow these instructions can result in death, injury or property damage.**

### WARNING



#### Electrical Shock Hazard

**Disconnect electrical power before service or maintenance.**

**Failure to follow these instructions can result in death or electrical shock.**

## SECTION 2: INSTALLER RESPONSIBILITY

The installer is responsible for the following:

- To install the heater, as well as the gas and electrical supplies, in accordance with applicable specifications and codes. Roberts-Gordon recommends the installer contact a local Building Inspector or Fire Marshal for guidance.
- To use the information given in a layout drawing and in the manual together with the cited codes and regulations to perform the installation.
- To install the heater in accordance with the clearances to combustibles.
- To furnish all needed materials not furnished as standard equipment.
- To plan location of supports.
- To provide access to burners for servicing on all sides, for burner removal.
- To provide the owner with a copy of this installation, operation and service manual.
- To never use heater as support for ladder or other access equipment and never hang or suspend anything from heater.
- To safely and adequately install heater using materials with a minimal working load of 75 lbs. (33 kg).
- To ensure there is adequate air circulation around the heater and to supply air for combustion, ventilation and distribution in accordance with local codes.

### 2.1 Wall Tag

A laminated wall tag is available for the heater as a permanent reminder of the safety instructions and the importance of the required clearances to combustibles. Please contact Roberts-Gordon or your ROBERTS GORDON® independent distributor to obtain the wall tag. Affix the tag by peeling off the backing of the adhesive strips on the rear surface and position the tag on a wall near the heater (e.g. thermostat or ROBERTS GORDON® Controller).

A copy of the wall tag (P/N 91037912) is illustrated on the back cover. For an immediate solution, you may affix this copy on the wall near the heater.

Know your model number and installed configuration. Model number and installed configuration are found on the burner and in the Installation, Operation and Service Manual. See Page 13, Figure 11 through Page 14, Figure 16. Write the proper clearance dimensions in permanent ink according to your

model number and configuration in the open spaces on the tag.

### 2.2 Corrosive Chemicals

#### CAUTION

**Do not use heater in an area containing corrosive chemicals.**

**Avoid the use of corrosive chemicals to ensure a longer life of the burner, tubing and other parts.**

**Failure to follow these instructions can result in property damage.**

Roberts-Gordon cannot be responsible for ensuring that all appropriate safety measures are undertaken prior to installation; this is entirely the responsibility of the installer. It is essential that the contractor, the sub-contractor, or the owner identifies the presence of combustible materials, corrosive chemicals or halogenated hydrocarbons\* anywhere in the premises.

*\* **Halogenated Hydrocarbons** are a family of chemical compounds characterized by the presence of halogen elements (fluorine, chlorine, bromine, etc.). These compounds are frequently used in refrigerants, cleaning agents, solvents, etc. If these compounds enter the air supply of the burner, the life span of the heater components will be greatly reduced. An outside air supply must be provided to the burners whenever the presence of these compounds is suspected. Warranty will be invalid if the heater is exposed to halogenated hydrocarbons.*



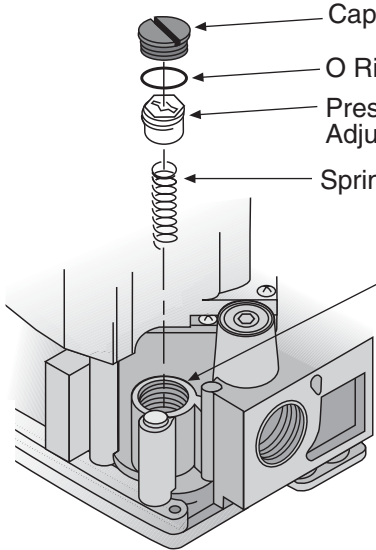
### 2.3 National Standards and Applicable Codes

All Appliances must be installed in accordance with the latest revision of the applicable standards and national codes. This refers also to the electric, gas and venting installation. Note: Additional standards for installations in Public Garages, Aircraft Hangars, etc. may be applicable.

In Canada, the conversion shall be carried out in accordance with the requirements of the provincial authorities having jurisdiction and in accordance with the requirements of the CAN-B149.1 and CAN/CGA B149.1 and B149.2 Installation Codes for Gas Burning Appliances.



**SECTION 3: FOR NATURAL TO PROPANE CONVERSIONS ONLY****FIGURE 1: Conversion Kit Regulator Installation in Valve (Natural to Propane)**

<p>This appliance has been converted to _____ fuel.</p> <p>Orifice: _____</p> <p>Manifold Pressure: _____</p> <p>Input: _____</p> <hr/> <p>Cet appareil a été converti au: _____</p> <p>Injecteur: _____</p> <p>Pression à la tubulure d'alimentation: _____</p> <p>Débit calorifique: _____</p> <p><small>© ROBERTS GORDON Printed in the U.S.A./Imprimé aux États-Unis P/N 91039400</small></p> <p><b>Gas Conversion Label: P/N 91039400</b></p> <div style="text-align: center; margin-top: 20px;">  <p>Orifice: P/N (See Table Below)</p> </div>	<div style="background-color: black; color: white; text-align: center; padding: 5px; font-weight: bold;">             ⚠ WARNING           </div> <div style="display: flex; align-items: center;"> <div style="flex: 1; text-align: center;">  </div> <div style="flex: 2; padding-left: 10px;"> <p style="text-align: center; font-weight: bold;">Fire Hazard</p> <p><b>Check conversion kit part number before proceeding.</b></p> <p><b>Kit part number must match the corresponding model number.</b></p> <p><b>Failure to follow these instructions can result in death, injury or property damage.</b></p> </div> </div> <div style="margin-top: 20px;"> <p style="text-align: right;">Spring Kit: P/N 90032600</p>  <div style="position: absolute; top: 325px; left: 750px;"> <p>Cap Screw (black)</p> <p>O Ring (black)</p> <p>Pressure Regulator Adjusting Screw (white)</p> <p>Spring (red)</p> <p>Pressure Regulator Housing</p> </div> </div>
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**3.1 Contents of Fuel Conversion Kits (Natural to Propane)**

All kits include this manual (P/N 252101NA) and the VANTAGE® NP Installation, Operation and Service Manual (P/N 152101NA).

Kit Number	Model	Orifice P/N	Label	Spring Kit
CTHN040NP	CTHN-40	91910473	91039400	90032600
CTHN060NP	CTHN-60	91910444	91039400	90032600
CTHN080NP	CTHN-80	91910506	91039400	90032600
CTHN100NP	CTHN-100	91910433	91039400	90032600
CTHN125NP	CTHN-125	91910490	91039400	90032600
CTHN150NP	CTHN-150	91910482	91039400	90032600
CTHN175NP	CTHN-175	91910427	91039400	90032600
CTHN200NP	CTHN-200	91910423	91039400	90032600

SECTION 4: FOR PROPANE TO NATURAL CONVERSIONS ONLY  
FIGURE 2: Conversion Kit Regulator Installation in Valve (Propane to Natural)

This appliance has been converted to \_\_\_\_\_ fuel.

Orifice: \_\_\_\_\_

Manifold Pressure: \_\_\_\_\_

Input: \_\_\_\_\_

---

Cet appareil a été converti au: \_\_\_\_\_

Injecteur: \_\_\_\_\_

Pression à la tubulure d'alimentation: \_\_\_\_\_

Débit calorifique: \_\_\_\_\_

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**WARNING**


**Fire Hazard**

Check conversion kit part number before proceeding.

Kit part number must match the corresponding model number.

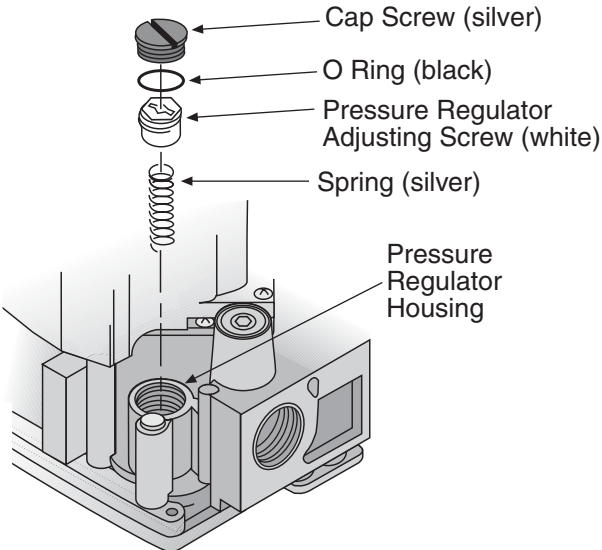
Failure to follow these instructions can result in death, injury or property damage.

Gas Conversion Label: P/N 91039400



Orifice: P/N (See Table Below)

Spring Kit: P/N 90032700



4.1 Contents of Fuel Conversion Kits (Propane to Natural)

All kits include this manual (P/N 252101NA) and the VANTAGE® NP Installation, Operation and Service Manual (P/N 152101NA).

Kit Number	Model	Orifice P/N	Label	Spring Kit
CTHN040PN	CTHN-40	91910433	91039400	90032700
CTHN060PN	CTHN-60	91910429	91039400	90032700
CTHN080PN	CTHN-80	91910421	91039400	90032700
CTHN100PN	CTHN-100	91910416	91039400	90032700
CTHN125PN	CTHN-125	91910409	91039400	90032700
CTHN150PN	CTHN-150	91910403	91039400	90032700
CTHN175PN	CTHN-175	91910496	91039400	90032700
CTHN200PN	CTHN-200	91910495	91039400	90032700

## SECTION 5: FUEL CONVERSION INSTRUCTIONS

**NOTE:** In order to convert the CTHN-Series heater for alternate gas, you must access both sides of the burner. It may be easier to remove the burner to a workbench; however, it can be converted in place. If you are converting the burner in place, skip to *Step 5.2*.

### Step 5.1 Burner Removal

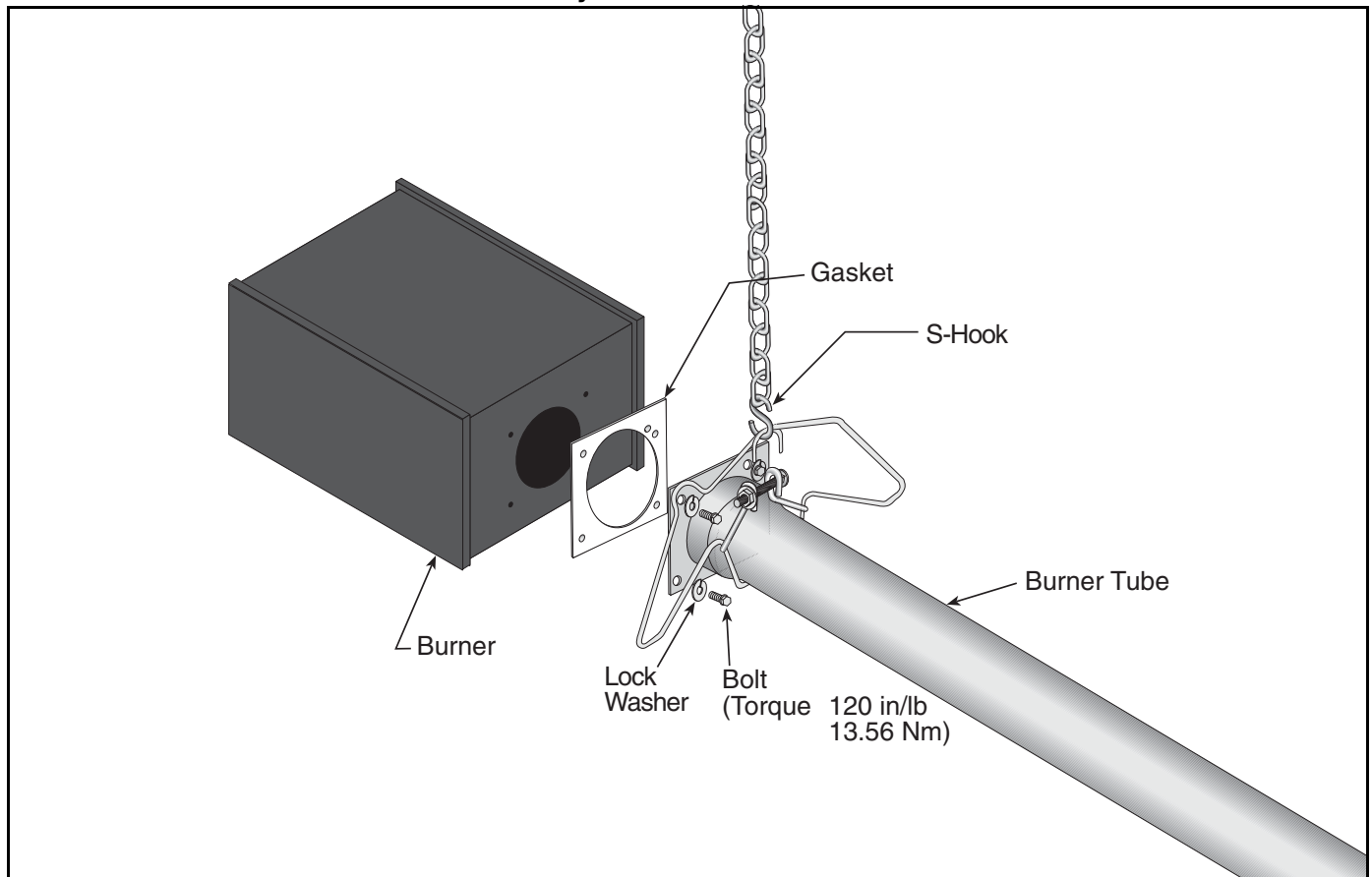
1. Turn off gas supply valve, disconnect gas from burner.
2. Turn off power supply and disconnect wires from burner.
3. Unplug thermostat wires from burner.

4. If outside air is installed, disconnect.
5. Remove the bolts which hold the burner on the transition tube using a 1/2" wrench.
6. Remove the burner. See *Figure 3*.
7. Save the gasket (P/N 02568200) or re-install a new one after conversion.

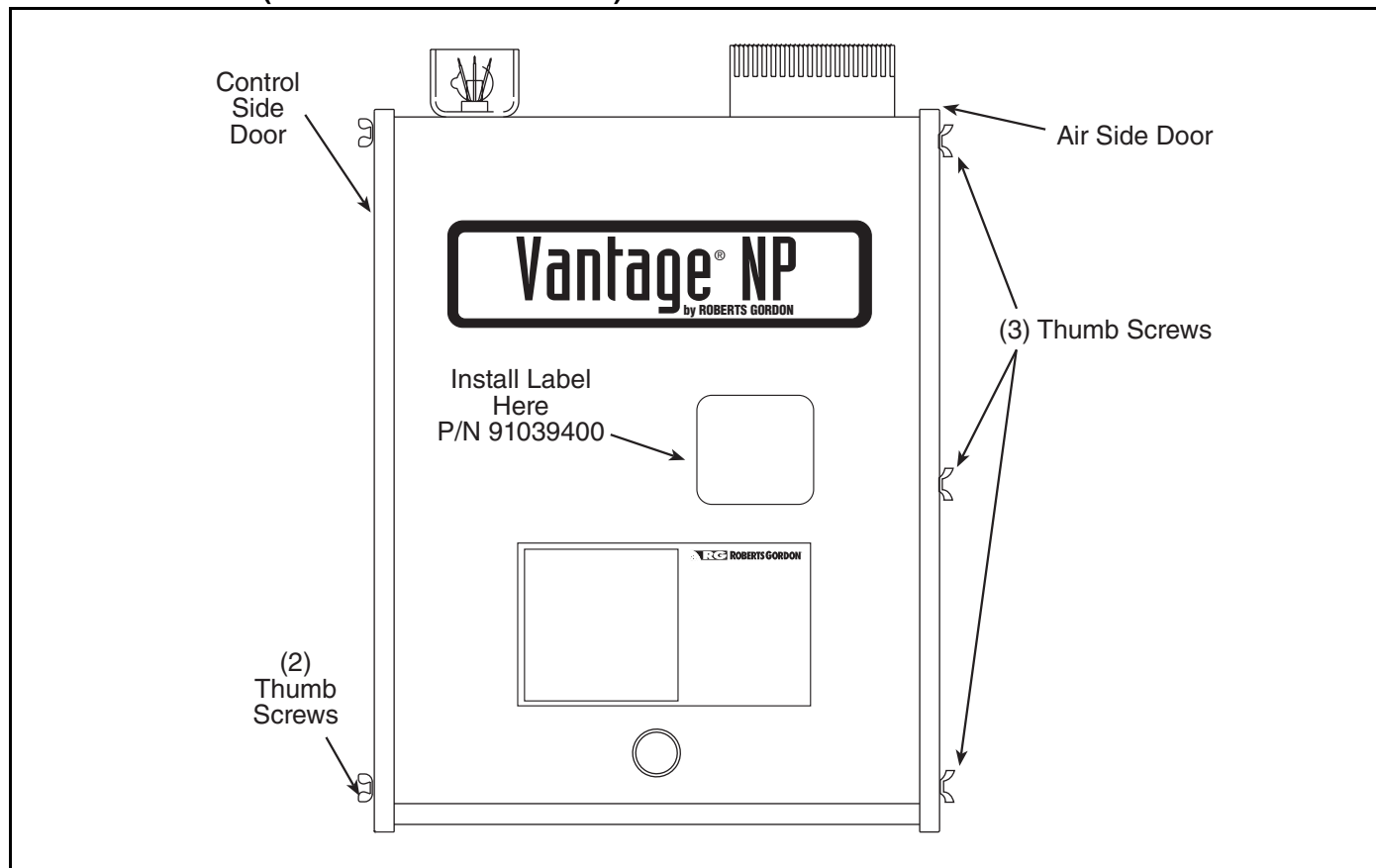
### Step 5.2 Door Assembly Removal

Remove thumb screws and set aside. See *Page 6*, *Figure 4*.

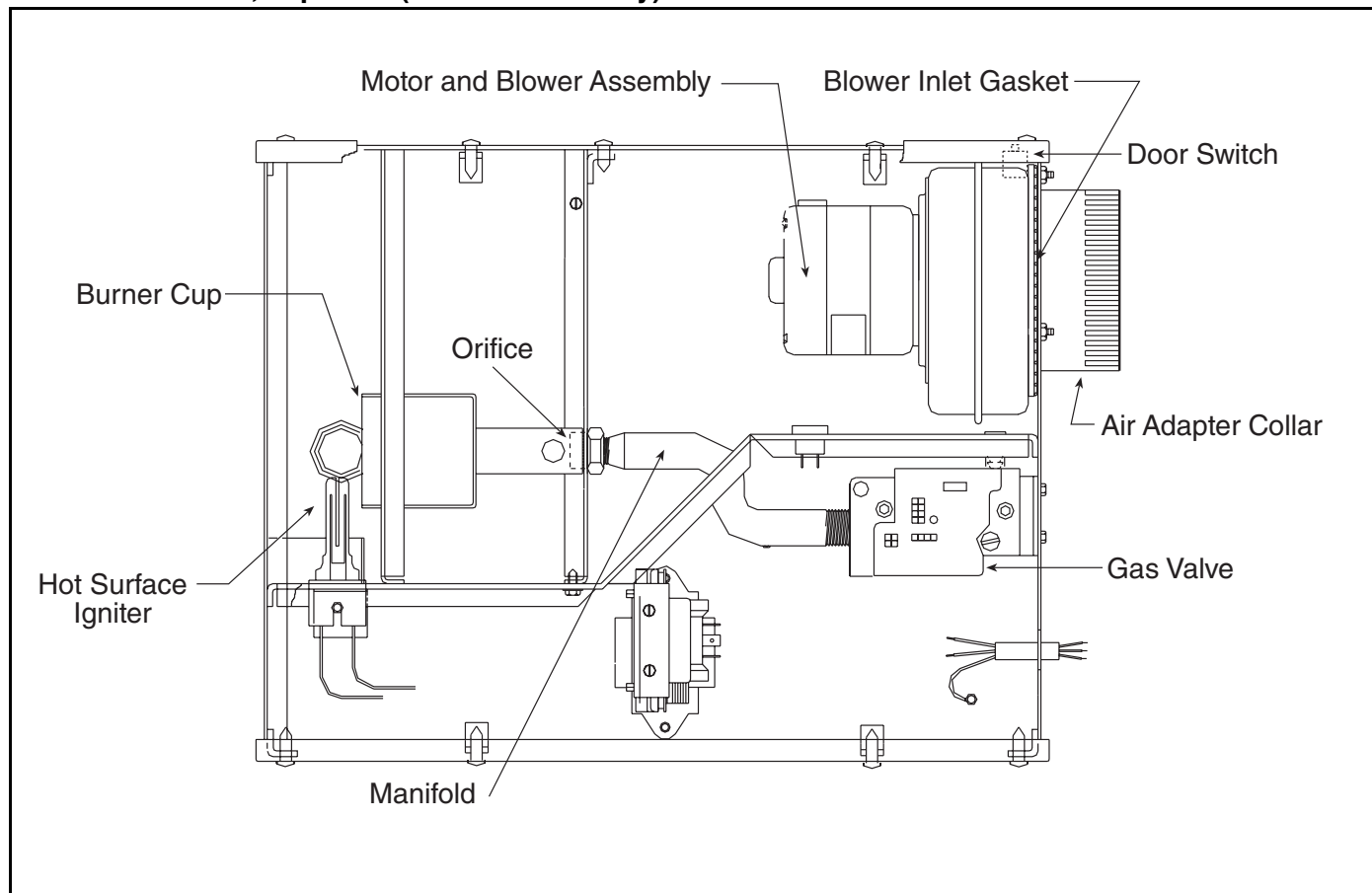
**FIGURE 3: VANTAGE® NP Burner Assembly Overview**



**FIGURE 4: Burner (external view from below)**



**FIGURE 5: Burner, Top View (internal assembly)**



### Step 5.3 Burner Cup Assembly Removal and Reassembly

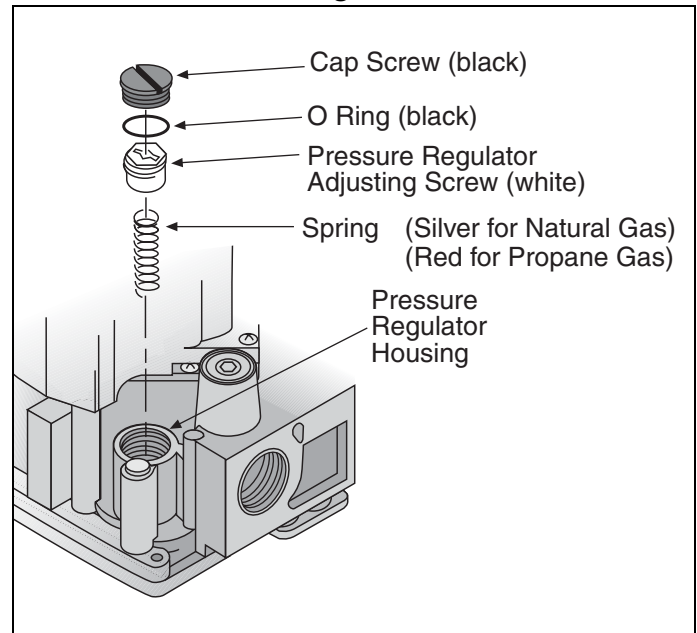
1. Remove the electrode: Remove the electrode with a 1/4" nutdriver or phillips (+) screwdriver.
2. Remove the air side door. Remove the three thumb screws and set the door aside. See *Page 6, Figure 4*.
3. Remove the burner cup. Unscrew the burner cup and set aside. See *Page 6, Figure 5*.
4. Remove and replace the gas orifice. Use a 1/2" open end wrench (spanner) to remove the orifice. Apply a small amount of pipe sealant to the threads of the replacement orifice. Be aware that over application of sealant may cause blockage of the orifice. Insert and tighten the replacement orifice.  
CAUTION: Do not over-tighten the orifice. The torque value for the orifice is 15 in/lbs; contact your factory representative for more details.
5. Be sure gas supply to heater is off.
6. Replace the burner cup. Insure the large external tooth washer is in place then tighten the burner cup.
7. Replace the air side door.
8. Replace the electrode.

### Step 5.4 Regulator Spring Replacement

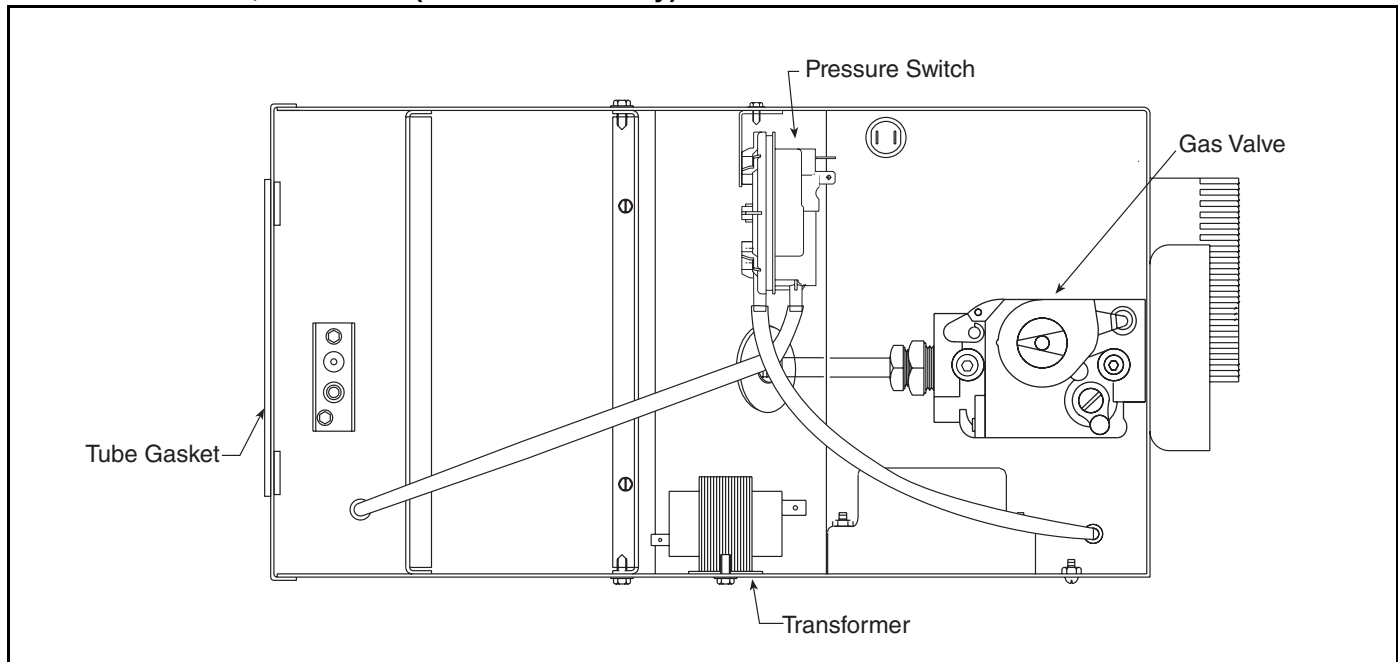
See *Figure 6*.

1. Replace the regulator spring. Using a flat head screwdriver, remove the cap from the regulator adjusting screw, remove the screw and remove and replace the spring.
2. NOTE: Silver spring for Natural, red spring for Propane.
3. See *Page 3, Section 3 and Page 4, Section 4* to verify spring kit components.
4. Replace the adjusting screw and turn down approximately 1/2".

**FIGURE 6: Pressure Regulator**



5. If the burner is removed, re-install the gasket and the burner on the transition tube by inserting lockwashers and bolts, torque to 120 in/lbs. Reconnect outside air, gas and electrical supplies. For proper installation procedures, see Venting, Gas Piping and Electrical Sections of the VANTAGE® NP Installation, Operation and Service Manual (P/N 152101NA) included in this Conversion Kit.

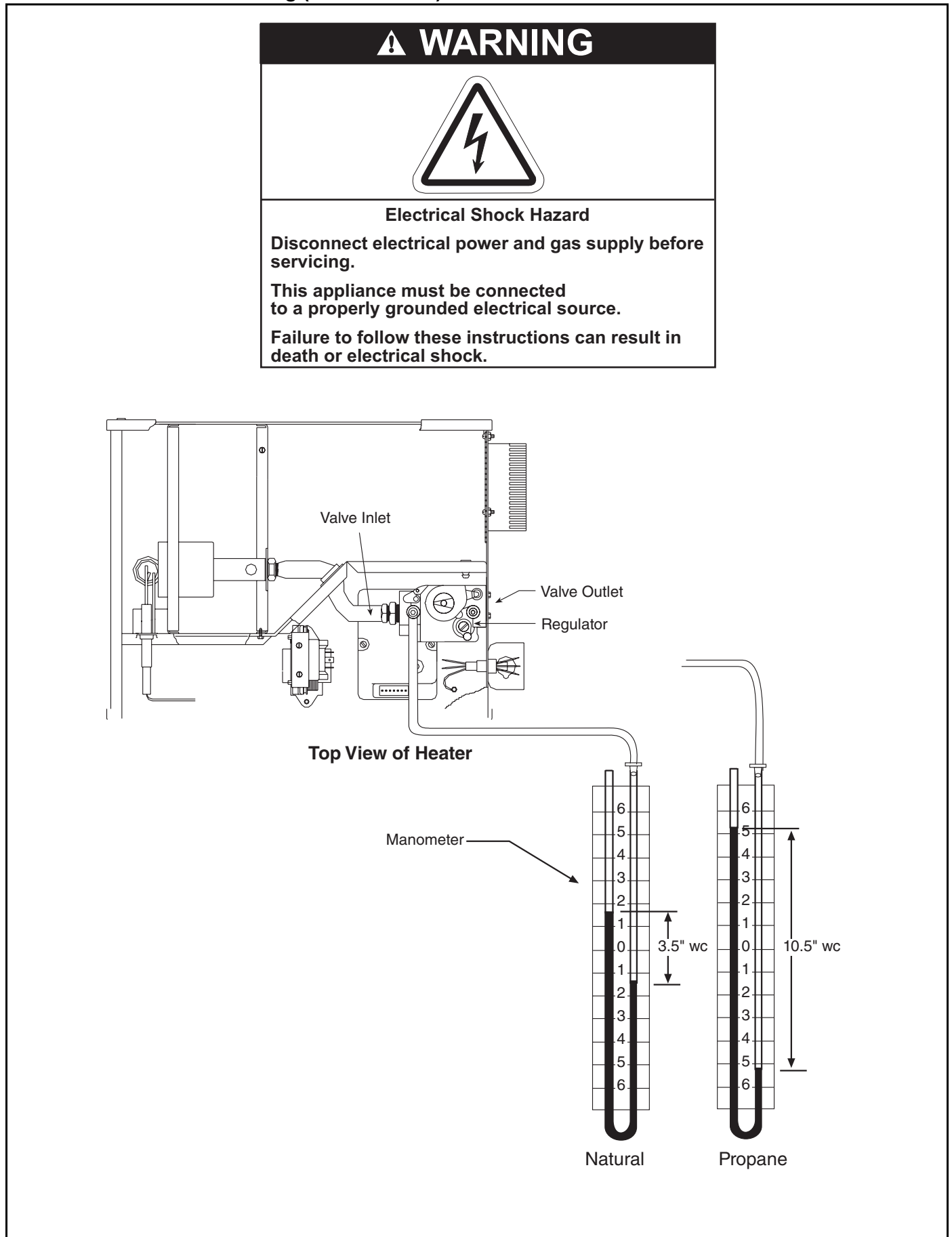
**FIGURE 7: Burner, Side View (internal assembly)****Step 5.5 Inlet Gas Pressure Checks**

The gas inlet pressure to the heater must be checked as follows:

1. Turn off electrical supply to heater.
2. Turn off gas supply to heater.
3. Remove the plug at the valve inlet and install a test tap and hose. Connect the hose to a liquid filled manometer. *See Page 9, Figure 8.*
4. Turn on gas supply to heater.
5. The manometer should read a maximum gas pressure of 14.0" wc for Natural or LP gas.
6. Turn on electrical supply to heater.
7. With heater in operation, manometer should read a minimum inlet pressure of 4.5" wc for Natural gas or 11.0" wc for LP gas.
8. If the required maximum and minimum pressures are not obtained, the main gas supply pressure to the heater must be adjusted as necessary.
9. Turn off main gas supply to heater.
10. Turn off electrical supply to heater.
11. Remove manometer and insert pipe plug into valve.
12. Turn on main gas supply to heater.
13. Leak test plug in tapping using soap solution.
14. Turn on electrical supply to heater.

**Step 5.6 Adjust Regulator**

1. Using a 3/16" hex key, remove the plug at the valve outlet and install a test tap and hose. Connect the hose to a liquid filled manometer. *See Page 9, Figure 8.*  
NOTE: Insure differential box pressure is .75" (hot) per Section 17 of the VANTAGE® NP Installation, Operation and Service Manual (P/N 152101NA). *See Page 10, Figure 9.*
2. Turn on gas and power, turn up thermostat.
3. When unit comes on; adjust the regulator by turning the adjusting screw to set the pressure to:  
**Natural: 3.5" wc**  
**Propane: 10.5" wc**
4. Turn off power and gas.
5. Remove test tap and replace plug at the valve outlet. Replace O ring and cap screw.

**FIGURE 8: Manometer Reading (Gas Pressure)**

**FIGURE 9: Manometer Reading (Differential Reading)**

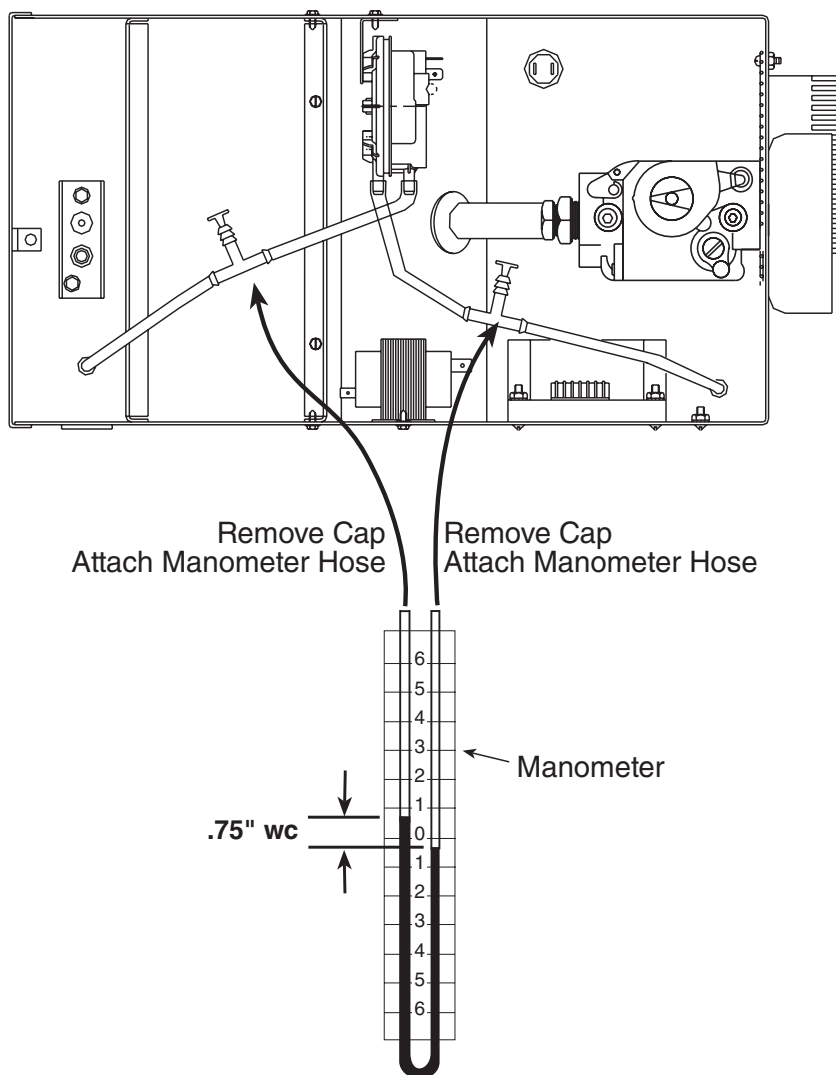
**⚠ WARNING**

**Electrical Shock Hazard**

Disconnect electrical power and gas supply before servicing.

This appliance must be connected to a properly grounded electrical source.

Failure to follow these instructions can result in death or electrical shock.





**FIGURE 10: Label P/N 91039400**

Enter Data for Natural to Propane Conversions		Enter Data for Propane to Natural Conversions	
Model	Propane Orifice Size	Model	Natural Orifice Size
CTHN-40	1.8 mm	CTHN-40	#33
CTHN-60	#44	CTHN-60	#29
CTHN-80	2.6 mm	CTHN-80	#21
CTHN-100	#33	CTHN-100	#16
CTHN-125	1/8"	CTHN-125	#9
CTHN-150	3.4 mm	CTHN-150	#3
CTHN-175	#27	CTHN-175	A
CTHN-200	#23	CTHN-200	E

The diagram shows a burner conversion label with two sections. The top section is for Propane conversions, and the bottom section is for Natural gas conversions. Arrows indicate where to enter data from the conversion tables above.

**Propane Section:**

- Propane → This appliance has been converted to \_\_\_\_\_ fuel.
- Orifice: \_\_\_\_\_
- 10.5" wc → Manifold Pressure: \_\_\_\_\_
- From Serial Plate → Input: \_\_\_\_\_

**Natural Section:**

- Natural ← This appliance has been converted to \_\_\_\_\_ fuel.
- ← 3.5" wc
- ← From Serial Plate

**French Section:**

- Cet appareil a été converti au: \_\_\_\_\_
- Injecteur: \_\_\_\_\_
- Pression à la tubulure d'alimentation: \_\_\_\_\_
- Débit calorifique: \_\_\_\_\_

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**Step 5.7 Burner Conversion Label Information**

Print the requested information in the fields of the burner conversion label as shown in *Figure 10*.

**Step 5.8 Attach Burner Conversion Label**

1. Attach the small yellow gas label (included in conversion kit) to the gas valve. Attach the conversion label (P/N 91039400) to the burner housing. See *Page 6, Figure 4*.
2. Replace all access doors and secure with thumbscrews.

## SECTION 6: CRITICAL CONSIDERATIONS

### 6.1 Required Clearances to Combustibles

Clearances are the required distances that combustible objects must be away from the heater to prevent serious fire hazards. Combustibles are materials, which may catch on fire and include common items such as wood, paper, rubber, fabric, etc. **Maintain clearances to combustibles at all times for safety.**

Clearances for all heater models are located on the burner of the heater and *on Page 13, Figure 11 through Page 14, Figure 16* in this manual. Check the clearances on each burner for the model heater being installed to make sure the product is suitable for your application and the clearances are maintained. Read and follow the safety guidelines below:

- Keep gasoline or other combustible materials including flammable objects, liquids, dust or vapors away from this heater or any other appliance.
- Maintain clearances from heat sensitive material, equipment and workstations.
- Maintain clearances from vehicles parked below the heater.
- Maintain clearances from swinging and overhead doors, overhead cranes, vehicle lifts, partitions, storage racks, hoists, etc.
- In locations used for the storage of combustible materials, signs must be posted to specify the maximum permissible stacking height to maintain required clearances from the heater to the combustibles. Signs must be posted adjacent to
  - the heater thermostat. In the absence of a
  - thermostat, signs must be posted in a conspicuous location.
- Consult local Fire Marshal, Fire Insurance Carrier or other authorities for approval of proposed installation when there is a possibility of exposure to combustible airborne materials or vapors.
- Hang heater in accordance to the minimum suspension requirements in the heater's Installation, Operation and Service manual.
- If the radiant tubes must pass through the building structure, be sure that adequate sleeving and fire stop is installed to prevent scorching and/or fire hazard.

## WARNING



### Fire Hazard

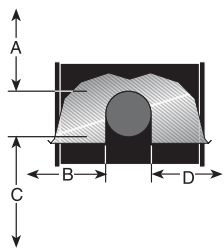
**Some objects will catch fire or explode when placed close to heater.**

**Keep all flammable objects, liquids and vapors the required clearances to combustibles away from heater.**

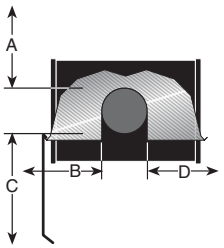
**Failure to follow these instructions can result in death, injury or property damage.**

- NOTE:** 1. All dimensions are from the surfaces of all tubes, couplings and elbows.  
 2. Clearances B, C and D can be reduced by 50% after 25' (7.5 m) of tubing downstream from where the burner and burner tube connect.

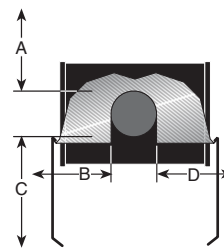
**FIGURE 11: STANDARD REFLECTOR**

	Model	(inches)				(centimeters)			
		A	B	C	D	A	B	C	D
	CTHN-40	5	20	41	20	13	51	104	51
	CTHN-60	5	27	51	27	13	69	130	69
	CTHN-80	5	30	58	30	13	76	147	76
	CTHN-100	5	32	60	32	13	81	152	81
	CTHN-125	5	35	65	35	13	89	165	89
	CTHN-150	5	39	71	39	13	99	180	99
	CTHN-175	8	44	74	44	20	112	188	112
	CTHN-200	8	47	76	47	20	119	193	119

**FIGURE 12: ONE SIDE REFLECTOR**

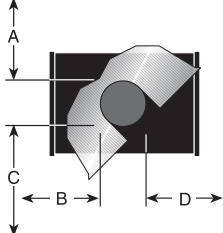
	Model	(inches)				(centimeters)			
		A	B	C	D	A	B	C	D
	CTHN-40	5	6	46	35	13	15	117	88
	CTHN-60	5	6	55	44	13	15	140	110
	CTHN-80	5	6	64	49	13	15	163	123
	CTHN-100	5	6	66	51	13	15	168	128
	CTHN-125	5	6	69	58	13	15	175	145
	CTHN-150	5	6	75	60	13	15	191	150
	CTHN-175	8	6	77	68	20	15	196	170
	CTHN-200	8	6	79	70	20	15	201	175

**FIGURE 13: TWO SIDE REFLECTORS**

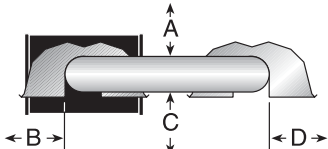
	Model	(inches)				(centimeters)			
		A	B	C	D	A	B	C	D
	CTHN-40	5	16	47	16	13	41	119	41
	CTHN-60	5	18	56	18	13	46	142	46
	CTHN-80	5	21	65	21	13	53	165	53
	CTHN-100	5	23	68	23	13	58	173	58
	CTHN-125	5	26	73	26	13	66	185	66
	CTHN-150	5	30	76	30	13	76	193	76
	CTHN-175	8	32	88	32	20	81	224	81
	CTHN-200	8	33	90	33	20	84	229	84

- NOTE:** 1. All dimensions are from the surfaces of all tubes, couplings and elbows.  
 2. Clearances B, C and D can be reduced by 50% after 25' (7.5 m) of tubing downstream from where the burner and burner tube connect.

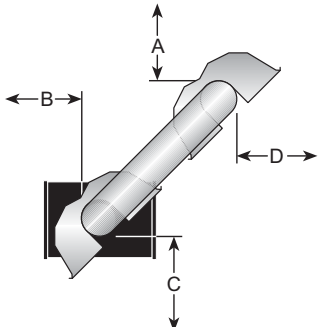
**FIGURE 14: 45° TILT REFLECTOR**

	Model	(inches)				(centimeters)			
		A	B	C	D	A	B	C	D
	CTHN-40	8	4	35	43	20	10	89	109
	CTHN-60	8	4	45	45	20	10	114	114
	CTHN-80	9	4	54	55	23	10	137	140
	CTHN-100	10	4	57	56	25	10	145	142
	CTHN-125	10	4	63	58	25	10	160	147
	CTHN-150	10	4	66	61	25	10	168	155
	CTHN-175	10	4	69	68	25	10	175	173
	CTHN-200	10	4	73	71	25	10	185	180

**FIGURE 15: U-TUBE, STANDARD REFLECTOR**

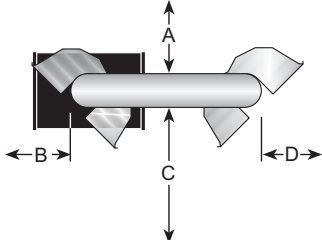
	Model	(inches)				(centimeters)			
		A	B	C	D	A	B	C	D
	CTHN-40	- UNAPPROVED -				- UNAPPROVED -			
	CTHN-60	5	27	56	19	13	69	142	48
	CTHN-80	5	30	61	20	13	76	155	51
	CTHN-100	5	32	63	20	13	81	160	51
	CTHN-125	5	35	66	20	13	89	168	51
	CTHN-150	5	39	73	21	13	99	185	53
	CTHN-175	8	44	75	26	20	112	191	66
	CTHN-200	8	47	76	30	20	119	193	76

**FIGURE 16: U-TUBE, 45°**

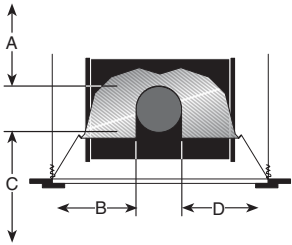
	Model	(inches)				(centimeters)			
		A	B	C	D	A	B	C	D
	CTHN-40	- UNAPPROVED -				- UNAPPROVED -			
	CTHN-60	8	4	47	40	20	10	119	102
	CTHN-80	8	4	54	46	20	10	137	117
	CTHN-100	8	4	57	48	20	10	145	122
	CTHN-125	8	4	63	53	20	10	160	135
	CTHN-150	8	4	66	56	20	10	168	142
	CTHN-175	8	4	69	59	20	10	175	150
	CTHN-200	8	4	73	63	20	10	185	160

- NOTE:** 1. All dimensions are from the surfaces of all tubes, couplings and elbows.  
 2. Clearances B, C and D can be reduced by 50% after 25' (7.5 m) of tubing downstream from where the burner and burner tube connect.

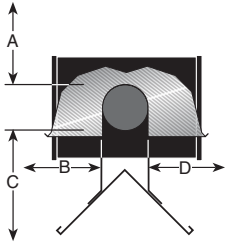
**FIGURE 17: U-TUBE, OPPOSITE 45° REFLECTOR**

	Model	(inches)				(centimeters)			
		A	B	C	D	A	B	C	D
	CTHN-40	<b>- UNAPPROVED -</b>				<b>- UNAPPROVED -</b>			
	CTHN-60	8	45	45	10	20	114	114	25
	CTHN-80	9	55	54	10	23	140	137	25
	CTHN-100	10	56	57	10	25	142	145	25
	CTHN-125	10	58	63	10	25	147	160	25
	CTHN-150	10	61	66	20	25	155	168	51
	CTHN-175	10	68	69	20	25	173	175	51
	CTHN-200	10	71	73	20	25	180	185	51

**FIGURE 18: 2-FOOT DECO GRILLE, 1-FOOT DECO GRILLE AND PROTECTIVE GRILLE**

	Model	(inches)				(centimeters)			
		A	B	C	D	A	B	C	D
	CTHN-40	5	20	41	20	13	51	104	51
	CTHN-60	5	27	51	27	13	69	130	69
	CTHN-80	5	30	58	30	13	76	147	76
	CTHN-100	5	32	60	32	13	81	152	81
	CTHN-125	5	35	65	35	13	89	165	89
	CTHN-150	5	39	71	39	13	99	180	99
	CTHN-175	8	44	74	44	20	112	188	112
	CTHN-200	8	47	76	47	20	119	193	119

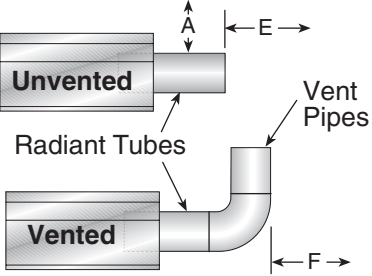
**FIGURE 19: LOWER CLEARANCE SHIELD\***

	Model	(inches)				(centimeters)			
		A	B	C	D	A	B	C	D
	CTHN-40	5	25	22	25	13	64	56	64
	CTHN-60	5	30	27	30	13	76	69	76
	CTHN-80	5	37	37	37	13	94	94	94
	CTHN-100	5	39	39	39	13	99	99	99
	CTHN-125	5	41	41	41	13	104	104	104
	CTHN-150	5	43	50	43	13	109	127	109
	CTHN-175	<b>- UNAPPROVED -</b>				<b>- UNAPPROVED -</b>			
	CTHN-200	<b>- UNAPPROVED -</b>				<b>- UNAPPROVED -</b>			

\*When installed in the first 10' (3 m).

- NOTE:** 1. All dimensions are from the surfaces of all tubes, couplings and elbows.  
 2. Clearances B, C and D can be reduced by 50% after 25' (7.5 m) of tubing downstream from where the burner and burner tube connect.

**FIGURE 20: VENTING**

	Model	(inches)			(centimeters)		
		A	E	F	A	E	F
	CTHN-40	14	18	18	36	46	46
	CTHN-60	14	18	18	36	46	46
	CTHN-80	20	24	18	51	61	46
	CTHN-100	20	24	18	51	61	46
	CTHN-125	20	24	18	51	61	46
	CTHN-150	20	30	18	51	76	46
	CTHN-175	20	30	18	51	76	46
	CTHN-200	20	30	18	51	76	46

## SECTION 7: OPERATION AND MAINTENANCE

 <b>WARNING</b>

<b>Fire Hazard</b> <b>Do not remove door while operating heater.</b> <b>No user servicable parts inside.</b> <b>Failure to follow these instructions can result in death, injury or property damage.</b>

The CTHN-Series series heater is equipped with a direct spark ignition system.

### 7.1 Sequence of Operation

1. Turn the thermostat up. When the thermostat calls for heat, the pump will start immediately. After a small delay, the burners will begin their ignition sequence, 45 seconds later, sparking will begin at the electrode. Upon sparking of the electrodes, the gas valve is energized.
2. The flame will be sensed by the flame sensing rod and the electrode is de-energized.
3. If a flame is detected, the gas valve remains open. When the call for heat is satisfied, the burner shuts off. On CTHN-Series systems equipped with the optional ROBERTS GORDON® controllers, the pump will continue operation for a post-purge period of two minutes.
4. If no flame is detected, the gas valve is closed on the module and a purge period begins. After the purge, the module sparks, and there is a second trial for ignition. If flame is still not established, a third purge, and trial cycle begins. After 3 trials, the module will lockout until reset. Reset is accomplished by removing power from the module for at least 5 seconds (thermostat cycle required).

### 7.2 To Shut Off Heater

Set thermostat to lowest setting.

Turn OFF electric power to heater.

Turn OFF manual gas valve in the heater supply line.

### 7.3 To Start Heater

Turn gas valve and electric power OFF and wait five minutes for unburned gases to vent from heater.

Turn ON main gas valve.

Turn ON electric power.

Set thermostat to desired temperature, burner should light automatically.

### 7.4 Pre-Season Maintenance and Annual Inspection

To ensure your safety and years of trouble-free operation of the heating system, service and annual inspections must be done by a contractor qualified in the installation and service of gas-fired heating equipment.

Disconnect gas and electric supplies before performing service or maintenance. Allow heater to cool before servicing.




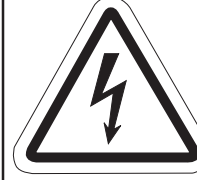
Before every heating season, a contractor qualified in the installation and service of gas-fired heating equipment must perform a thorough safety inspection of the heater.

For best performance, the gas, electrical, thermostat connections, tubing, venting, suspensions and overall heater condition are some of the areas requiring inspection.

**NOTE:** Gas flow and burner ignition are among the first things that should be inspected.

Please see *Page 18, Section 7.5* for suggested items to inspect.

## 7.5 Maintenance Checklist

 <b>WARNING</b>		
		
<b>Explosion Hazard</b>		
<p><b>Service and annual inspection must be done by a contractor qualified in the installation and service of gas-fired heating equipment or your gas supplier.</b></p> <p><b>Turn off gas and electrical supplies before performing service or maintenance.</b></p> <p><b>Failure to follow these instructions can result in death, injury or property damage.</b></p>		

### Installation Code and Annual Inspections:

All installations and service of ROBERTS GORDON® products must be performed by a contractor qualified in the installation and service of products sold and supplied by Roberts-Gordon and conform to all requirements set forth in the ROBERTS GORDON® manuals and all applicable governmental authorities pertaining to the installation, service and operation of the equipment.

To help facilitate optimum performance and safety, Roberts-Gordon recommends that a qualified contractor annually inspect your ROBERTS GORDON® products and perform service where necessary, using only ROBERTS GORDON® replacement parts.

<b>The Vicinity of the Heater</b>	<p>Do not store or use flammable objects, liquids or vapors near the heater. Immediately remove these items if they are present.</p> <p><i>See Page 12, Section 6.</i></p>
<b>Vehicles and Other Objects</b>	<p>Maintain the clearances to combustibles.</p> <p>Do not hang anything from, or place anything on, the heater.</p> <p>Make sure nothing is lodged underneath the reflector, in between the tubes or in the decorative or protective grilles (included with select models).</p> <p>Immediately remove objects in violation of the clearances to combustibles.</p> <p><i>See Page 12, Section 6.</i></p>
<b>Reflector</b>	<p>Make sure there is no dirt, sagging, cracking or distortion.</p> <p>Do not operate if there is sagging, cracking or distortion.</p> <p>Make sure reflectors are correctly overlapped.</p> <p>Clean outside surface with a damp cloth.</p>
<b>Vent Pipe</b>	<p>Venting must be intact. Using a flashlight, look for obstructions, cracks on the pipe, gaps in the sealed areas or corrosion.</p> <p>The area must be free of dirt and dust.</p> <p>Clean and re-install as necessary.</p> <p>Remove any carbon deposits or scale using a wire brush.</p>
<b>Outside Air Inlet</b>	<p>Venting must be intact. Using a flashlight, look for obstructions, cracks on the pipe, gaps in the sealed areas or corrosion.</p> <p>The area must be free of dirt and dust.</p> <p>Remove any carbon deposits or scale using a wire brush.</p>



<b>Tubes</b>	Make sure there are no cracks. Make sure tubes are connected and suspended securely. Make sure there is no sagging, bending or distortion. Clean or replace as required.
<b>Gas Line</b>	Check for gas leaks.
<b>Burner Observation Window</b>	Make sure it is clean and free of cracks or holes. Clean and replace as required.
<b>Blower Scroll, Wheel and Motor</b>	Compressed air or vacuum cleaner may be used to clear dust and dirt.
<b>Burner Cup and Orifice</b>	Clear of obstructions (even spider webs will cause problems). Carefully remove any dust and debris from the burner.
<b>Direct Spark Igniter/Sense Rod</b>	Replace if there are cracked ceramics, excessive carbon residue, or erosion of the Direct Spark Igniter/Sense Rod.
<b>Thermostat</b>	There should be no exposed wire or damage to the thermostat.
<b>Suspension Points</b>	Make sure the heater is hanging securely. Look for signs of wear on the chain or ceiling.
<b>Decorative and Protective Grille (optional)</b>	The grille must be securely attached. Check that side reflector extensions are installed correctly and secured in place if necessary. (Decorative grille only.) Make sure shield is installed correctly and secured in place if necessary. (Decorative grille only.)

## Pump

With pump operating, check for excessive vibration or noise. Vibration is usually a sign that the impeller is out of balance. Turn off the system, insure power is shut off and remove the inlet plate. Check the shaft seal and replace if worn or missing.

### **With the power off:**

Check the inlet and outlet of the pump for blockage or excessive soot and clean as necessary.

Check boots for cracking or deterioration and replace if necessary.

If a condensate trap is installed, check the condition of the trap and the drain line attached. Note: the condensate trap should be filled with water at the beginning of each heating season.

Check the condition of the motor mounts. Lift the motor from the rear; and look for breaks in the rubber and replace if necessary.

Check the condition and operation of the pressure switch.

---

**SECTION 8: THE ROBERTS GORDON® VANTAGE® NP WARRANTY****ROBERTS-GORDON WILL PAY FOR:**

ROBERTS GORDON® warrants to the original owner-user that this ROBERTS GORDON® product will be free from defects in material and workmanship. This warranty is limited to thirty-six (36) months from the date of purchase by the original consumer, or forty-two (42) months from date of shipment by Roberts-Gordon, whichever occurs first.

ROBERTS GORDON® replacement parts are warranted for the period of the original ROBERTS GORDON® VANTAGE® NP Warranty.

**ROBERTS-GORDON WILL NOT PAY FOR:**

Service trips, service calls and labor charges.  
Shipment of replacement parts.  
Damage due to:

Failure to install, operate or maintain the ROBERTS GORDON® VANTAGE® NP as directed in Installation, Operation and Service Manual. You must follow requirements printed in this manual.

Misuse, abuse, neglect or modification of the ROBERTS GORDON® VANTAGE® NP in any way.

Improper service, use of replacement parts or accessories that are not specified by Roberts-Gordon.

Improper installation, or any relocation of the ROBERTS GORDON® VANTAGE® NP after initial installation.

Incorrect supply, accident, fire, flood, acts of God or other casualty.

Use of the ROBERTS GORDON® VANTAGE® NP for other than its intended purpose.

Use of the ROBERTS GORDON® VANTAGE® NP in a corrosive atmosphere or any atmosphere containing contaminants.

Shipping. Claim must be filed with carrier.

Use of the ROBERTS GORDON® VANTAGE® NP in the vicinity of combustible or explosive materials.

Any defect in the ROBERTS GORDON® VANTAGE® NP arising from a drawing, design or specification supplied by or on behalf of the consumer.

Failure of parts not manufactured by Roberts-Gordon in respect of any claim where the total price of the goods has not been paid.

**WARRANTY IS VOID IF:**

The ROBERTS GORDON® VANTAGE® NP is not installed by a contractor qualified in the installation and service of gas-fired heating equipment.

You cannot prove original purchase date and required annual maintenance history.

The data plate and/or serial number are removed, defaced, modified or altered in any way.

The ROBERTS GORDON® VANTAGE® NP is transferred. This warranty is nontransferable.

Roberts-Gordon is not permitted to inspect the damaged burner and/or component parts.

**READ YOUR INSTALLATION, OPERATION AND SERVICE MANUAL**

If you have questions about your heater, contact your installing professional. Should you need Replacement Parts or have additional questions, call or write Roberts-Gordon:

**U.S.A.**

1250 William Street  
P.O. Box 44  
Buffalo, New York 14240-0044  
716.852.4400

**On the web at:** [www.rg-inc.com](http://www.rg-inc.com)

**Roberts-Gordon's liability, and your exclusive remedy, under this warranty or any implied warranty (including the implied warranties of merchantability and fitness for a particular purpose) is limited to providing replacement parts during the term of this warranty.**

Some jurisdictions do not allow limitations on how long an implied warranty lasts, so this limitation may not apply to you. There are no rights, warranties or conditions, expressed or implied, statutory or otherwise, other than those contained in this warranty.

**Roberts-Gordon shall in no event be responsible for incidental or consequential damages or incur liability for damages in excess of the amount paid by you for the ROBERTS GORDON® VANTAGE® NP.** Some

jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from jurisdiction to jurisdiction.

Roberts-Gordon shall not be responsible for failure to perform under the terms of this warranty if caused by circumstances out of its control, including but not limited to fire, flood, strike, government or court orders, unavailability of supplies, parts or power. No person is authorized to assume for Roberts-Gordon any other warranty, obligation or liability.

**LIMITATIONS ON AUTHORITY OF REPRESENTATIVES:**

No representative of Roberts-Gordon, other than an Executive Officer, has authority to change or extend these provisions. Changes or extensions shall be binding only if confirmed in writing by Roberts-Gordon's duly authorized Executive Officer.





## OWNER WARRANTY REGISTRATION CARD

### Mail or Fax to:

Roberts Gordon, LLC • 1250 William Street, P.O. Box 44 • Buffalo, NY 14240-0044 • Phone: 716-852-4400 • Fax: 716-852-0854  
Toll Free: 800-828-7450 • www.rg-inc.com

### About the Owner:

Name: \_\_\_\_\_  
Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ E-mail: \_\_\_\_\_

### About the Installer:

Name: \_\_\_\_\_  
Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ E-mail: \_\_\_\_\_

### Purchased From (if different than installer):

Name: \_\_\_\_\_  
Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ E-mail: \_\_\_\_\_

### About your Heater:

Model #: \_\_\_\_\_ Serial #: \_\_\_\_\_ Fuel: \_\_\_\_\_ Installation Date: \_\_\_\_\_

### Type of Installation (check one):

☐ Automotive      ☐ Manufacturing      ☐ Warehouse      ☐ Recreational      ☐ Aircraft  
☐ Public Building      ☐ Office      ☐ Retail      ☐ Agricultural      ☐ Other \_\_\_\_\_

**Installation Code and Annual Inspections:** All installations and service of ROBERTS GORDON® products must be performed by a contractor qualified in the installation and service of products sold and supplied by Roberts-Gordon and conform to all requirements set forth in the ROBERTS GORDON® manuals and all applicable governmental authorities pertaining to the installation, service and operation of the equipment.

To help facilitate optimum performance and safety, Roberts-Gordon recommends that a qualified contractor annually inspect your ROBERTS GORDON® products and perform service where necessary, using only ROBERTS GORDON® replacement parts.

**This product is not for residential use.**

This product is intended to assist licensed professionals in the exercise of their professional judgement.

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Attach this information to a wall near the ROBERTS GORDON® heater.



Read the Installation, Operation, and Service Manual thoroughly before installation, operation, or service.

Know your model number and installed configuration.

Model number and installed configuration are found on the burner and in the Installation, Operation and Service Manual.

Write the largest clearance dimensions with permanent ink according to your model number and configuration in the open spaces below.

#### OPERATING INSTRUCTIONS

1. STOP! Read all safety instructions on this information sheet.
2. Open the manual gas valve in the heater supply line.
3. Turn on electric power to the heater.
4. Set the thermostat to desired setting.

#### TO TURN OFF THE HEATER

1. Set the thermostat to off or the lowest setting.

#### IF THE HEATER WILL NOT OPERATE, TO ENSURE YOUR SAFETY, FOLLOW THESE INSTRUCTIONS TO SHUT DOWN YOUR HEATER

1. Set the thermostat to off or the lowest setting.
2. Turn off electric power to the heater.
3. Turn off the manual gas valve in the heater supply line.
4. Call your registered installer/contractor qualified in the installation and service of gas-fired heating equipment.

#### ⚠ WARNING



#### Fire Hazard

Some objects can catch fire or explode when placed close to heater.

Keep all flammable objects, liquids and vapors the required clearances to combustibles away from heater.

Failure to follow these instructions can result in death, injury or property damage.

Maintain \_\_\_\_\_ clearance  
to the side and  
\_\_\_\_\_ clearance below  
the heater from vehicles  
and combustible materials.

**Roberts-Gordon, LLC**  
1250 William Street  
P.O. Box 44  
Buffalo, NY 14240-0044 USA  
Telephone: 716.852.4400  
Fax: 716.852.0854  
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**Roberts-Gordon Europe Limited**  
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E-mail: export@rg-inc.com

#### Installation Code and Annual Inspections:

All installations and service of ROBERTS GORDON® products must be performed by a contractor qualified in the installation and service of products sold and supplied by Roberts-Gordon and conform to all requirements set forth in the ROBERTS GORDON® manuals and all applicable governmental authorities pertaining to the installation, service and operation of the equipment. To help facilitate optimum performance and safety, Roberts-Gordon recommends that a qualified contractor annually inspect your ROBERTS GORDON® products and perform service where necessary, using only ROBERTS GORDON® replacement parts.

**Further Information:** Applications, engineering and detailed guidance on systems design, installation and product performance is available through ROBERTS GORDON® representatives. Please contact us for any further information you may require, including the Installation, Operation and Service Manual.

**This product is not for residential use.**

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www.rg-inc.com

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